CLAIMS

1. A light receiving element module which receives signal light emitted from an optical fiber, comprising:

a lens which condenses signal light emitted from the optical fiber;

a reflecting mirror which has a quadric surface which reflects the signal light condensed by the lens; and

a light receiving element which receives the signal light reflected by the reflecting mirror to convert the signal light to an electric signal.

2. The light receiving element module according to claim 1, wherein a real image at an emitting point for the signal light in the optical fiber is imaged by the lens with respect to a virtual image of a light receiving face of the light receiving element formed on an optical axis of the lens by the reflecting mirror.

3. The light receiving element module according to claim 1, wherein the reflecting mirror is a parabolic mirror.

4. The light receiving element module according to claim 3, wherein the signal light condensed by the lens is incident on the reflecting surface generally in parallel with the axis of the reflecting surface, and

the signal light which is incident on a position offset from the center of the reflecting mirror by approximately a radius is reflected on

the reflecting surface.

5. The light receiving element module according to claim 3, wherein the signal light condensed by the lens is incident on the reflecting surface generally in parallel with the axis of the reflecting surface, and

the signal light incident is reflected at an approximately right angle on the reflecting surface.

6. The light receiving element module according to claim 1, wherein the reflecting mirror is a hyperboloid mirror.

7. The light receiving element module according to claim 1, wherein the lens is a spherical lens.

8. The light receiving element module according to claim 1, further comprising a trans-impedance amplifier which is arranged on the same flat face as the light receiving element in proximity to the light receiving element and amplifies the electric signal converted by the light receiving element.

9. The light receiving element module according to claim 1, wherein the reflecting mirror is formed by using a plastic mold.

10. The light receiving element module according to claim 1, wherein adjustment of the optical axis of the optical fiber in three axial directions of the optical axis direction and two directions perpendicular to the optical axis is performed.

11. The light receiving element module according to claim 1, wherein the magnification of a partial system of the lens is set to one time or more and three times or less,

the magnification of a partial system of the reflecting mirror is set to 1/6 time or more and one time or less, and

the magnification of the whole optical system including the lens and the reflecting mirror is set to 0.5 times or more and one time or less.

12. The light receiving element module according to claim 1, wherein one of the radius of curvature and the focal length of the reflecting mirror is 1 millimeter or less.

13. The light receiving element module according to claim 8, further comprising a capacitor whose ground is electrically connected to a ground of the trans-impedance amplifier, wherein

the light receiving element, the trans-impedance amplifier, and the capacitor are arranged on the substantially same flat face.

14. The light receiving element module according to claim 8, further comprising a capacitor on which the light receiving element is mounted and whose back face is connected to a ground face of the base.

15. A light receiving element module which receives signal light emitted from an optical fiber, comprising:

a stem where signal pins penetrate;

a base which is fixed in a direction perpendicular to the stem;

a cap member which has a light passing-through hole and is fixed to the stem;

a spherical lens which is inserted into the light passing-through hole and condenses signal light emitted from the optical fiber;

a parabolic mirror which is arranged on the base and reflects the signal light condensed by the spherical lens by refracting the signal light at an approximately right angle;

a light receiving element which is arranged on the base and receives the signal light reflected by the parabolic mirror to convert the signal light to an electric signal; and

a trans-impedance amplifier which is arranged on the base in proximity to the light receiving element and amplifies the electric signal converted by the light receiving element.

16. A light receiving element module which receives signal light emitted from an optical fiber, comprising:

a stem where signal pins penetrate;

a base which is fixed in a direction perpendicular to the stem;

a cap member which has a first light passing-through hole and is fixed to the stem;

a window member which covers the first light passing-through hole;

a lens holding member which has a second light passing-through hole and is fixed to the cap member;

a spherical lens which is inserted into the second light passing-through hole and condenses signal light emitted from the optical fiber;

a parabolic mirror which is arranged on the base and reflects the signal light condensed by the spherical lens by refracting the signal light at an approximately right angle;

a light receiving element which is arranged on the base and receives the signal light reflected by the parabolic mirror to convert the signal light to an electric signal; and

a trans-impedance amplifier which is arranged on the base in proximity to the light receiving element and amplifies the electric signal converted by the light receiving element.